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(12) **UK Patent Application** (19) **GB** (11) **2 264 975** (13) **A**
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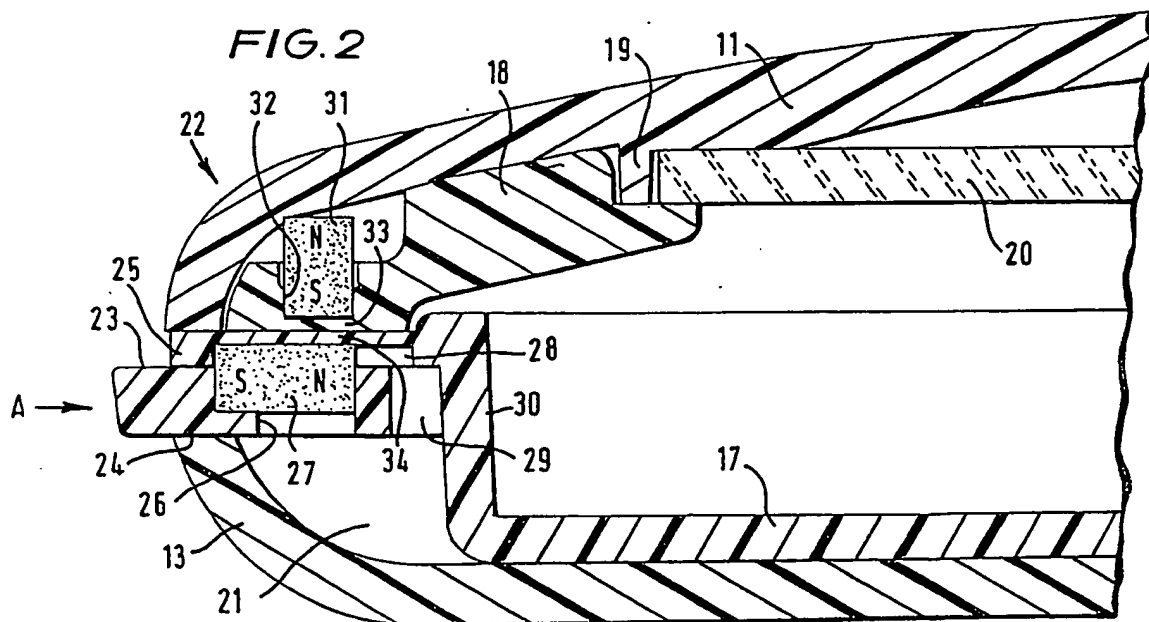
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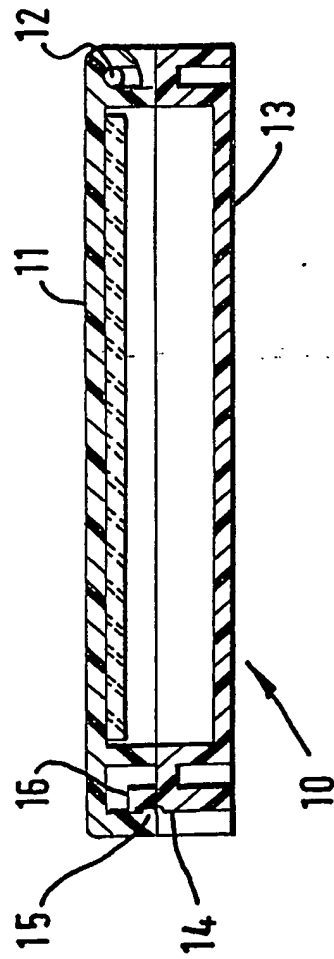
(54) **Magnetic catches**

(57) A cosmetic compact or like container comprises a lid 11 and a base 13 held closed by a magnetic catch 22 comprising magnetic components 27 and 31 within the base and lid, component 27 being movable relative to component 31. In a first orientation with the lid closed the net magnetic forces between the components 27, 31 are attractive, but on movement of component 27 in the direction of arrow A by pushing button 23 against the bias of a bow spring 29 the net magnetic forces become of reduced attractiveness or are neutral or repulsive, to free the lid 11. At least the movable component 27 remains hidden (by web 34 as shown) to present a neat, protuberance-free appearance.



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FIG. 1
(PRIOR ART)



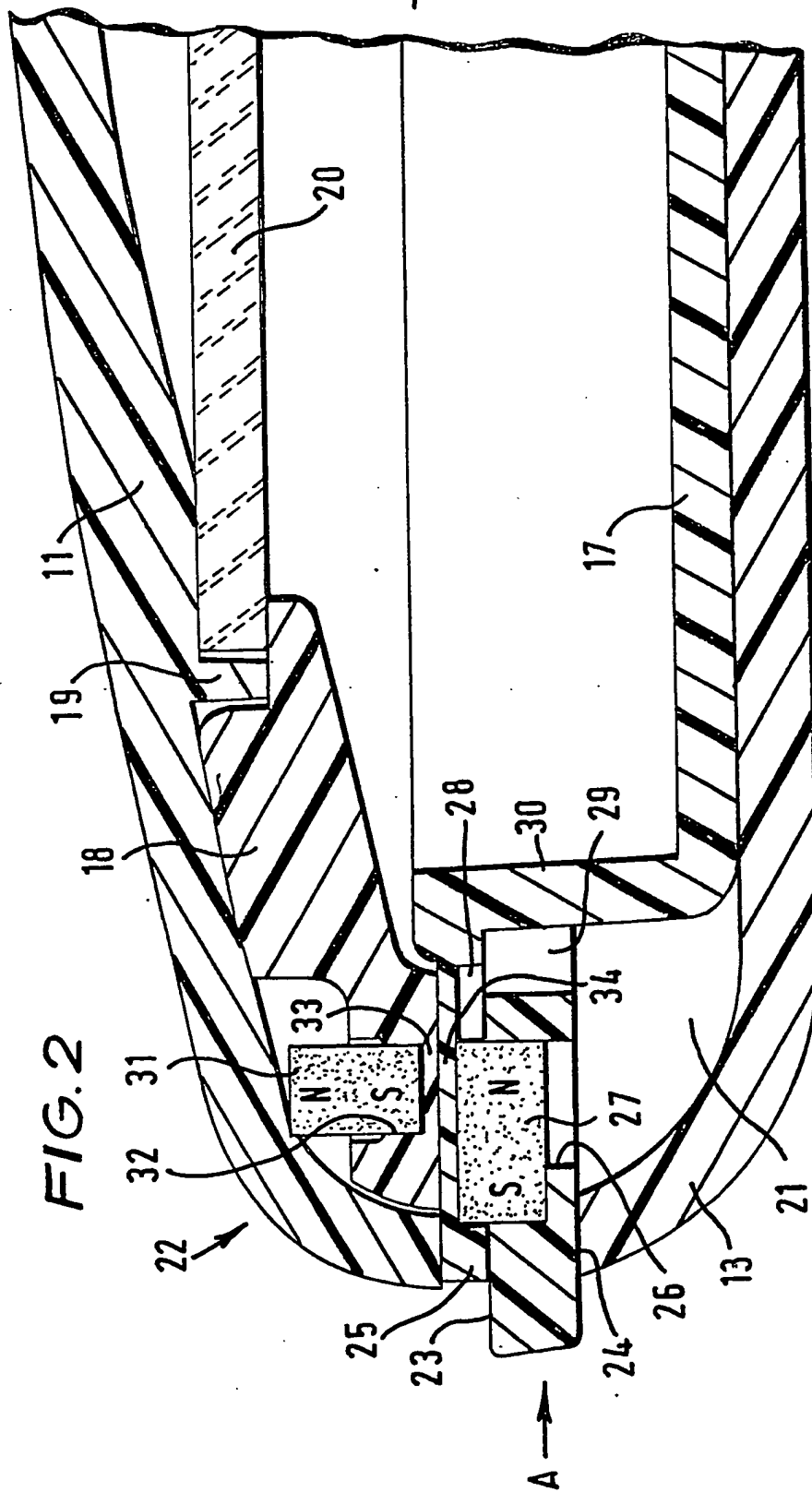
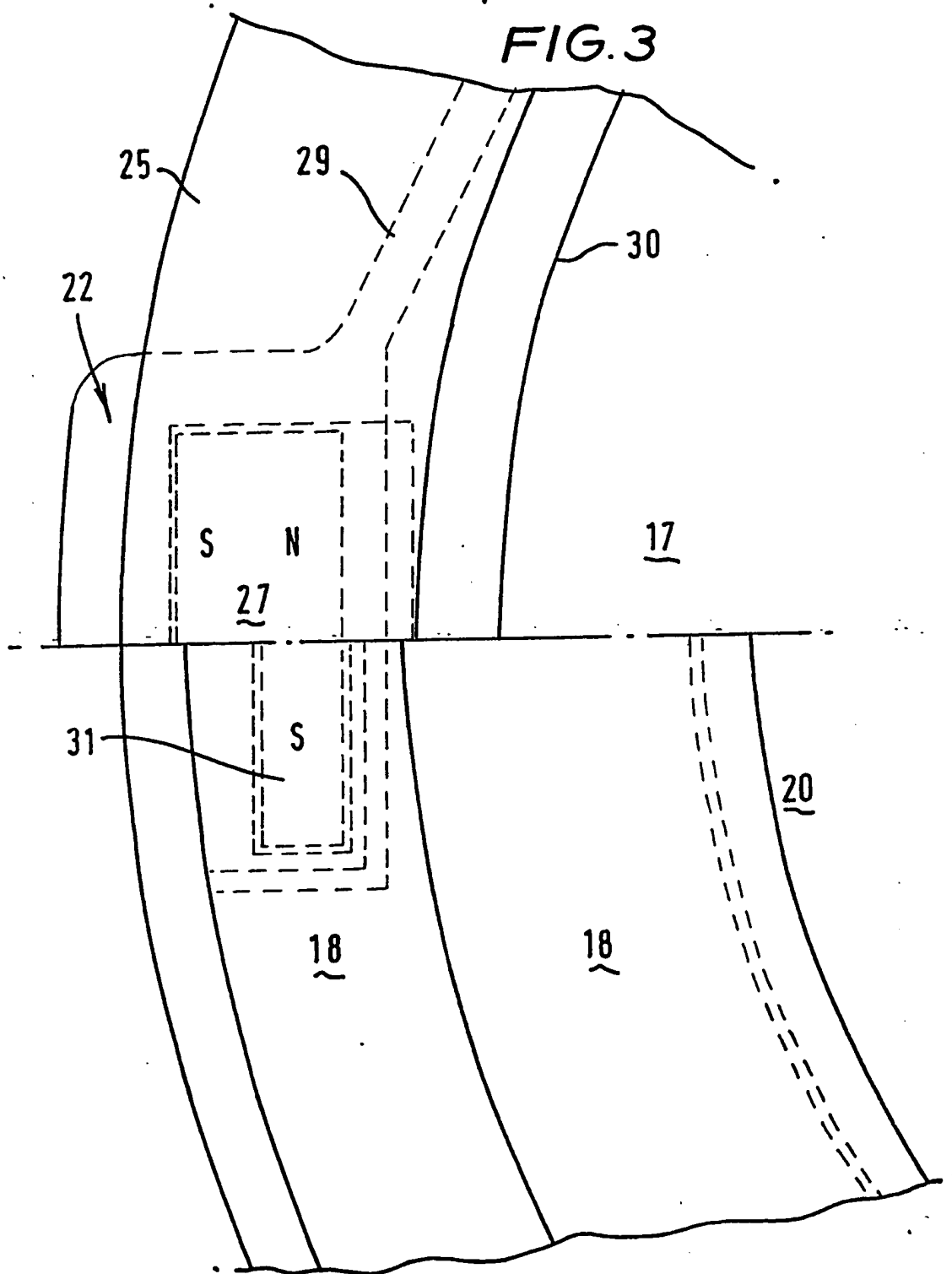


FIG. 3



CATCHES

This invention relates to a catch for releasably securing together two relatively movable members, one of which may be for example a lid, flap or door. Applications for the catch include securing cosmetic compact lids, cover flaps in domestic electronic equipment and even cupboard doors. The invention is however not limited to those uses.

For safety, comfort or aesthetic reasons it is often desirable that a catch should present no sharp protruberances when opened. A magnetic catch can meet this requirement but previously known magnetic catches need significant opening force, equal to the attractive magnetic forces which hold them closed. For easy operation such catches therefore require readily grasped handles which themselves may protrude and be dangerous or ugly.

The present invention aims to eliminate these disadvantages and accordingly provides a magnetic catch for releasably securing together two relatively moveable members, comprising first and second magnetic arrangements, each carried by a respective one of the members, at least one of the arrangements being moveable relative to the other arrangement with the catch closed, between a first orientation in which the net magnetic forces between the arrangements are attractive, to secure the members together, and a second orientation in which said net magnetic forces are of reduced attractiveness, or are neutral or repulsive, to release the members.

Preferably one of the arrangements is slidable on its respective member between the first orientation, in which unlike magnetic poles in the arrangements are juxtaposed, and the second orientation, in which like magnetic poles are juxtaposed to thereby force the members apart. The slidable

magnetic arrangement may be resiliently biased towards the first (attractive) orientation.

An illustrative embodiment of the invention is described below by way of example and with reference to the drawings in which:-

Fig. 1 shows a cosmetic compact of the prior art;

Fig. 2 is a sectional view of part of a cosmetic compact, incorporating a catch according to the present invention; and

The lower half of Fig. 3 is an underside view of the part of the compact lid shown in Fig. 2, whereas the upper half of Fig. 3 is a top plan view of the part of the compact base shown in Fig. 2.

The compact 10 of Fig. 1 includes a lid 11 hinged at 12 to a base 13. The lid 11 can be releasably secured shut by a lipped finger 14 extending upwardly from the base 13 to be snap-engageable with a lip 15 provided on the lid 11. The finger 14 (and to some extent the recess 16 into which the finger extends when the lid 11 is closed) are somewhat unsightly and uncomfortable to handle.

Compacts are known in which pressure on a release button first disengages the finger from the lip and then forces the lid open, so that no handle or user grip formation is required on the lid by which it may be forced apart from the base. The present invention in a preferred form can be used to achieve the same result magnetically.

The part compact shown in Figs. 2 and 3 includes a lid 11 and a base 13 hinged together in conventional manner. A plastics godet 17 is secured in the base for example by glueing or as a press fit. The lid 11 has a plastics moulding 18 secured to it by retaining pins 19. A trim panel

20 which may be a mirror is trapped between the moulding 18 and the lid 11. Opposite the hinge (not shown) the godet 17 and the base 13 define between them a recess 21 for receiving one half of a pop-open magnetic catch 22. The catch 22 includes a plastics button member 23 extending through a slot 24 formed in the base 13, just below a peripheral flange 25 of the godet 17. The button member 23 is slidable in the direction of arrow A by applied finger pressure and includes an upwardly facing recess 26 for reception of a magnet 27. The upper part of the magnet 27 slides in a groove 28 provided on the underside of the flange 25. The button member 23 includes two integrally moulded bow spring arms 29 (only one shown, Fig. 3) which bias the button member 23 in the outward direction. The remote ends of the arms 29 are braced against the godet sidewall 30 and are trapped between the godet flange 25 and lower retaining lugs (not shown) protruding from the sidewall 30. The other half of the catch 22 is constituted by a fixed magnet 31 held in a recess 32 formed in the moulding 18 opposite the hinge. Only thin webs 33, 34 of non-magnetic material separate the facing portions of magnets 27, 31. Alternatively, the facing portion of at least magnet 31 can be exposed. The fixed magnet 31 is arranged with its poles perpendicular to the parting line between the lid 11 and the base 13. The slidable magnet 27 is arranged with its poles lying along the sliding axis. With the lid closed and the button member 23 in its relaxed, outward position, unlike poles of the magnets 27, 31 are arranged to be closest to one another, so that the lid is held closed. Pushing the button member 23 inwards in the direction of arrow A brings the opposite end of magnet 27 into alignment with the lower end of magnet 31. In this position like magnetic poles (south as shown) are aligned and the lid 11 pops open.

The magnets 27, 31 may be any suitably sized permanent magnets, for example sintered bar magnets or even horseshoe magnets, provided the accommodating recesses 26, 32 are modified accordingly. Other magnetic arrangements giving full

attraction in one position of the button member and reduced attraction, no attraction or repulsion in the other position of the button member will be readily apparent. The lid and/or the button member may carry more than one magnet if desired.

One of the magnetic arrangements may consist of a non-magnetised ferromagnetic material, the two arrangements being relatively movable so that with the button member in its outward position there is strong attraction between the arrangements, whereas when the button is pushed in, the arrangements are separated so as to reduce the attraction.

Although it is preferred to resiliently bias the button member 23, satisfactory results are possible using the bias provided by magnetic forces alone.

CLAIMS

1. A magnetic catch for releasably securing together two relatively moveable members, comprising first and second magnetic arrangements, each carried by a respective one of the members, at least one of the arrangements being moveable relative to the other arrangement with the catch closed, between a first orientation in which the net magnetic forces between the arrangements are attractive, to secure the members together, and a second orientation in which said net magnetic forces are of reduced attractiveness, or are neutral or repulsive, to release the members.

2. A catch as claimed in claim 1 wherein one of the arrangements is slideable on its respective member between the first orientation, in which unlike magnetic poles in the arrangements are juxtaposed, and the second orientation, in which like magnetic poles are juxtaposed to thereby force the members apart.

3. A catch as claimed in claim 2 wherein the slidable magnetic arrangement is resiliently biased towards the first orientation.

4. A magnetic catch substantially as shown in or as described with reference to the drawings.

Amendments to the claims have been filed as follows

1. A cosmetic compact or like container having a lid and a base held closed by a magnetic catch comprising magnetic components within the lid and the base respectively, one magnetic component being movable relative to the other component with the lid closed between a first orientation, in which net magnetic forces are attractive to hold the lid and base together, and a second orientation, in which said net magnetic forces are of reduced attractiveness, or are neutral or repulsive, to free the lid, at least the movable component remaining hidden when the lid is opened.
2. A catch as claimed in claim 1 wherein one of the arrangements is slideable on its respective member between the first orientation, in which unlike magnetic poles in the arrangements are juxtaposed, and the second orientation, in which like magnetic poles are juxtaposed to thereby force the members apart.
3. A catch as claimed in claim 2 wherein the slidable magnetic arrangement is resiliently biased towards the first orientation.
4. A magnetic catch substantially as shown in or as described with reference to the drawings.

Examiner's report to the Comptroller under
Section 17 (The Search Report)

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9204480.9

Relevant Technical fields

(i) UK CI (Edition K) E2A: ACAH

(ii) Int CL (Edition 5) EO5C

Search Examiner

P J SILVIE

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

18 MAY 1992

Documents considered relevant following a search in respect of claims

ALL

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1207641 A (FORD)	1-3
X	GB 0573454 A (RICHARDSON)	1-3
X	US 3822906 A (GAINES)	1,2
X	US 3790197 A (GENERAL ELECTRIC)	1-3

Category	Identity of document and relevant passages	Relevant to claim(s)

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